

CLAIMS

1. A reconfigurable optoelectronic circuit adapted to alter its internal configuration, comprising a plurality of logic blocks of electronic
5 circuit and an optical circuit interconnecting them, wherein both the internal configuration of each of the logic blocks and the optical interconnections of the logic blocks using the optical circuit are alterable.
- 10 2. A circuit according to claim 1, wherein said optical circuit includes a sheet-shaped optical transmission medium and ports adapted to at least either transmit an optical signal to or receive an optical signal from the optical transmission medium,
15 the inter-port optical connections being arranged so as to allow alterations.
3. A circuit according to claim 1, wherein closely located ones of the logic blocks can be interconnected by electric wires.
- 20 4. A circuit according to any of claims 1 through 3, wherein each of said logic blocks includes a plurality of logic elements and an electric connection network interconnecting the logic elements and at least either the internal configuration of at
25 least one of the logic elements is or the interconnections of the logic elements are alterable.
5. A circuit according to claim 4, wherein

configuration data are distributed by way of said optical circuit and the internal configuration of any of the logic blocks is altered according to the configuration data.

5 6. A circuit according to claim 4, wherein each of said logic blocks comprises a variable logic section and a memory section and the memory section holds configuration data that corresponds to the internal configuration of the variable logic section.

10 7. A circuit according to claim 6, wherein said logic blocks are adapted to move, copy and/or replace the internal configuration of some other logic block by way of the optical circuit.

 8. A hierarchically reconfigurable circuit,
15 comprising a first stratum having a plurality of logic elements whose internal configurations are alterable, a second stratum containing logic blocks having electric wires and switches arranged in the form of a matrix and interconnecting the arranged
20 logic elements and adapted to switch the interconnections of the logic elements and a third stratum having a sheet-shaped optical transmission medium for optically interconnecting the logic blocks and adapted to switch the interconnections of the
25 logic blocks.

 9. An interconnection structure, comprising electric wires interconnecting logic elements,

electric switches adapted to alter the interconnections of the logic elements, ports connected to the logic elements and adapted to perform opto-electric signal conversions and a means
5 for altering optical interconnections among the ports by way of a sheet-shaped optical transmission medium.